

IN THE SPECIFICATION:

Please amend the specification as follows:

Pursuant to 37 CFR § 1.121(b)(1)(iii), a marked up copy of each paragraph amended below appears on the page immediately following each amendment.

Please delete the paragraphs that begin on page 1, line 4 and end on page 1, line 11 and insert the following paragraph therefor:

-- BACKGROUND

A1
This disclosure relates to the design, development and distribution of computer systems and, more particularly, to a technique for automatically providing the desired language translation of textual components of a software program, the translation to be provided concurrently with the installation of the program during assembly/manufacture of the computer system. --

Please delete the paragraph that begins on page 3, line 6 and ends on page 3, line 22 and insert the following paragraph therefor:

A2
-- Although U.S. Patent Number 5,903,859 undeniably represents a significant breakthrough in the development, maintenance and support of software systems in multiple-language versions, the subject disclosure further advances the state of the art by affording a technique for implementing multiple-language versions of software programs that are to be installed in computer systems that are specifically preconfigured at the time of system assembly, according to the particular requirements of an individual customer. In particular, in the context of a computer system assembly process designed to accommodate the specific requirements of individual customers on an ad hoc basis, it has been found desirable, if not

necessary, to download portions, if not all, of the software at the time of system assembly. The computer's operating system software is a primary example of software that must be installed concurrently with the assembly of the computer system. Accordingly, in this context what is desired is an efficient and convenient technique for translating textual portions of the operating system or other software, including software that depends on or is controlled by the operating system, at the time of downloading that software during the course of system assembly. --


Please delete the paragraphs that begin on page 4, line 3 and end on page 6, line 25 and insert the following therefor:

-- In a manner to be made presently clear, a notable improvement is realized by the subject disclosure, wherein only a single installation script is required to launch necessary translations of software that contains textual portions, such as messages, that depend on the prevailing operating system and desired language translation.

SUMMARY


The above and other objects, advantages and capabilities are achieved in one aspect by a method of installing desired-language translation of software in a computer system at the time the computer system is assembled. According to the method, a record is created, in response to a customer's order, that comprises identifiers that specify which software is to be installed in the computer system. Operating system software is installed, as determined by a first identifier that identifies the type of operating system and a desired-language. A second identifier that identifies other software to be installed is read from the record and is parsed to a call to a batch file that constitutes an installation script. The installation script causes a native-language version of the other software to be installed in the

computer system and in turn, calls a translation script. Based on the type of file in which the other software is stored, and on the installed operating systems, the translation script selects a translation routine from a set of available translation routines. Based on the desired-language translation, the selected translation routine identifies native-language textual portions of the other software and substitutes desired-language translations.

 A cognate embodiment of the disclosure is represented in a method of providing the appropriate translation of textual portions of a source code program to be installed in a computer system in the course of assembling the system. The method comprises (a) reading a file to determine the source code program, and the corresponding selected language version of that source code program, to be installed in the computer system; (b) calling a translation string set that corresponds to the source code program; (c) reading from the translation string set the translation strings required by the selected language version; (d) searching a file that constitutes at least a portion of the source code program to find a string; (e) finding among the translation strings read in Step (c) a matching string that matches the string found in Step (d); and (f) substituting into a given file the matching string found in Step (e) for the string found in Step (d).

Another aspect is embodied in a computer system in which there is installed a source code program with translated textual components. The appropriately translated textual components are installed, during assembly of the computer system, by initially reading a (system description record) file to identify the source code program, and the selected language version of the textual components of that program, that are to be installed in the computer system. A call is then made to a translation string set that corresponds to the program, and the translation strings that apply to the selected language version of the program are read from the string set. Subsequently, a textual string is located in the program and a matching,

appropriately translated, string is found among the strings previously read from the translation string set. The matching string is then substituted for the string that had been formerly embedded in the source code program.

 A further aspect represents a method of translating text portions of software, concurrently with the loading of the software into a computer system. According to the method, the software to be installed is identified. A first utility associated with the software to be installed reads language-specific files associated with the software. A second utility, specific to the applicable language translation of the software, substitutes the necessary text translations into the language-specific file.

Yet another aspect is embodied in a system for installing software into a computer, as the computer is assembled. The system comprises a server that stores a native-language version of the software and comprises means, such as a LAN, for coupling the server to the computer during software installation. A system description record (SDR), created in response to a customer order, contains an identifier that specifies the software to be installed in the computer. An installation script, stored on the server, operates in response to the identifier to cause the native-language version of the software to be downloaded via the LAN to the computer. A translator script, also stored on the server, is called by the installation script and, in turn, selectively calls one of a set of translation routines in that identify text strings in the software that need to be translated and that substitute the desired-language translation for the identified strings.

The disclosure is similarly realized in a server, or equivalent processor, coupled to a computer system that is to be preconfigured in response to a customer's order. The server includes an installation utility for installing software in the computer system during assembly. An installation script running on the server operates in response to a software identifier to cause a native-language version of

software to be downloaded from the server to the computer system. The server also runs a translation script that, when called by the installation script, selects a translation routine from a set of such routines, wherein the selected routine identifies native-language text strings in the downloaded software and substitutes the desired-language translations for the identified native-language strings.

AB
BRIEF DESCRIPTION OF THE DRAWINGS

The present disclosure may be better understood, and its numerous objects, features, and advantages made apparent to those skilled in the art by referencing the accompanying drawings, in the several figures of which like numerals identify identical elements, and wherein:

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~~FIG. 1 is a flow diagram depicting a method of automatically translating text files during the downloading of software into a computer system at the time of system assembly. --~~

Please delete the paragraph that begins on page 7, line 4 and ends on page 7, line 6 and insert the following therefor:

py
-- For a thorough understanding of the subject disclosure, reference is made to the following Description, which includes the appended Claims, in connection with the above-described Drawings. --

Please delete the paragraphs that begin on page 8, line 1 and end on page 9, line 2 and insert the following paragraph therefor:

AS
-- In order to assemble the computer system in conformance with the customer's orders, the SDR is read and hardware components of the system are

installed. In a preferred embodiment, software components are installed subsequent to the installation of hardware. Installation of software components is realized through use of the combined hardware/software system depicted in Figure 2.

WZ As may be seen from Figure 2, during the assembly process, the computer system, presumably with all optional hardware components in place, but as yet no software installed, is connected to a server 1. In the contemplated factory environment, the computer assembly is coupled to the server through a local area network (LAN), but other connecting mechanisms, such as direct cabling, are contemplated. As with installation of the customer-selected hardware components, software installation is driven by the SDR. That is to say, the software components to be installed in the computer system are specified by, or derived from, information contained in the SDR that was created in response to the customer's order. Installation of software is facilitated by a set of installation utilities known as the Thompson Toolkit (TTK) 11, which is commercially available from Thompson Automation, Inc., Portland, Oregon. In essence, TTK11 is a UNIXTM compatible command system that consists of two major components: the TTK shell and the TTK Utility Commands. The TTK shell is a command interpreter that may be invoked as a program from a number of operating systems, including DOS, OS/2, Windows NT or Windows 95. The TTK shell may be used both for command entry and for shell script execution. The TTK Utility Commands perform a variety of necessary computer-system tasks. The set of TTK Utility Commands consists of two types: "external" commands and "internal" commands. External commands are supplied as stand-alone executable programs, also known as ".exe" files. All TTK external commands can be run either from the TTK shell or directly from a compatible operating system command interpreter. Internal commands are executed directly by the TTK Shell and therefore can be invoked only from the TTK Shell or by running a shell script. A thorough understanding of the operation and capabilities of TTK11 may be had from the user's manual entitled "Thompson

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~~Toolkit," published by Thompson Automation, Inc. and herein incorporated by reference. In a preferred embodiment, TTK11 resides and runs on server 1. --~~

Please delete the paragraph that begins on page 9, line 22 and ends on page 10, line 4 and insert the following therefor:

FF

-- For purposes of explanation, it may be assumed that the next data item to be read from the SDR identifies the video driver that is required by the graphics adapter card selected by the customer. The video driver will similarly be identified by an alphanumeric part number and will appear as a data item in the SDR. Assuming, for pedagogical purposes, that the part number corresponding to the video driver is "fish 6", then based on that part number, a parser 3 parses a table file (not shown) to determine the installation script that must be run in order to install and properly translate the video driver. In essence, parser 3 operates to parse the part number into a call to a batch file that contains the installation script. In this instance the batch file is found to contain the following commands:

- unzip.sh fish6all ZN4
 - ltrans.sh C:\winnt\inf\video.inf --
-

Please delete the paragraph that begins on page 12, line 9 and ends on page 12, line 23 and insert the following therefor:

AM -- From the above, it may be seen that the translation script anticipates text files of more than one type. Specifically, in the embodiment described herein, four types of files are accommodated by the translation script. However, the disclosure comprehends any reasonable number of text files as necessary. These file types are similarly identified by an extension on the installation script command "ltrans.sh []. EXT," where "EXT" corresponds to one of the text file types. In the embodiment described, these files are identified by the acronyms: ISS, INF, SCR, and WYL. For example, an ISS file is a text file that contains answers to queries posed by software such as Install Shield, well known to those familiar with the art. Similarly, an INF file corresponds to a driver installation program used by Windows-type operating systems. The character of the text-type files does not represent an aspect of the subject disclosure. However, it is germane to the disclosure that the installation script and translation script recognize different text file types. In addition, operation of the translation routines is predicated on knowledge of the text strings that are confronted in the respective text files. --

Please delete the paragraphs that begin on page 14, line 1 and end on page 14, line 28 and insert the following therefor:

AS -- From the above, it may be appreciated that the subject disclosure offers significant operational improvements and advantages with respect to heretofore known approaches to translating textual portions of software programs. Perhaps paramount is the fact that the disclosure enables textual portions of software to be translated into the desired language substantially contemporaneously with the installation of that software into a customer-specified computer system. As a result,

only a single native-language version of that software need be stored for downloading into computer-systems, irrespective of the operating system and desired language specified by the customer. Furthermore, rather than requiring a customized installation script for each combination of text file, operating system and desired language, the disclosure requires only a single installation script for each language-sensitive software program.

Although the disclosure has been described with respect to the specific exemplary embodiments set forth above, it is not necessarily limited to those embodiments. Various modifications, improvements, and additions may be implemented by those with skill in the art, and such modifications, improvements and additions will not depart from the scope of the disclosure, as defined by the appended Claims. For example, in order to conveniently and clearly present a description of the preferred embodiment, the TTK installation utility, the installation script, the translation script, and the translation routines are all indicated as resident on the server. However, it is recognized that other approaches to the indicated partitioning of these functions, or their distribution to more than one processor, represents an insubstantial deviation from the embodiment described above. Therefore, the Claims below are intended to embrace all modifications, variations and improvements that fall within the true spirit and scope of the disclosure, as well as substantial equivalents thereof. Accordingly, other embodiments, not particularly described herein, are nonetheless not excluded from the scope of the disclosure, which is defined by the Claims.